

GEOGARYPUS RHANTUS SP. NOV. (PSEUDOSCORPIONIDA : GARYPIDAE :
GEOGARYPINAЕ); A GENERIC ADDITION TO THE AUSTRALIAN FAUNA.

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ABSTRACT

The pseudoscorpion genus *Geogarypus* is recorded from Australia for the first time. *G. (G.) rhantus* sp. nov. is described from leaf litter collections in the northern part of Cape York Peninsula, Queensland.

INTRODUCTION

The cosmopolitan pseudoscorpionid family Garypidae consists of over a dozen genera. Two subfamilies have been erected to accommodate these genera: the Garypinae and the Geogarypinae (Chamberlin 1930). The Garypinae contains the majority of the genera, only two of which have been recorded from Australia, *Synsphyronus* Chamberlin and *Garypus* L.Koch (Beier 1966). The Geogarypinae is represented by a single genus, *Geogarypus* Chamberlin, which has basically a circum-tropical distribution.

Geogarypus has not hitherto been reported from the Australian continent, even though it seems to be common on islands in the Pacific Ocean and to the north of Australia, including Malaysia, Indonesia and New Guinea (Beier 1957, 1965). Specimens of an undescribed species of this genus were found in leaf litter berlesates from Cape York Peninsula, Queensland. This new species is described in the present paper.

MATERIALS AND METHODS

The specimens were removed from 70% ethanol, treated overnight (15 to 20 hours) with cold 10% potassium hydroxide, washed in distilled water and mounted on microscope slides in Stroyan's modification of Berlese's mountant (Norris and Upton 1974). The chela and chelicera of some specimens were dissected off and mounted separately, the former on cavity slides. This facilitated the inspection of the fine detail of these organs.

All specimens were measured with a micrometer eyepiece on a compound microscope.

Measurements and trichobothrial abbreviations follow those employed by Chamberlin (1931).

All material is lodged in the Queensland Museum.

Genus *Geogarypus* Chamberlin

Geogarypus Chamberlin, 1930: 609. Type species, *Garypus minor* L.Koch, by original designation.

Subgenus *Geogarypus* s.str.

This subgenus may be distinguished from the other subgenera, *Afrogarypus* Beier and *Indogarypus* Beier, by the following combination of characters: absence of dorsal sulcus and internolateral constriction on pedipalpal chela; accessory tooth row present on fixed chelal finger; relatively slender leg segments; trichobothrium *st* of the moveable chelal finger equally spaced between *sb* and *t*.

Geogarypus (Geogarypus) rhantus sp. nov.
(Figs. 1A-F)

MATERIAL EXAMINED

HOLOTYPE: QM S352, ♂, 2.vii.1976, base of Lamond Hill, Iron Range, NE.Q., R.Raven, V.E. Davies.

PARATYPES: QM S652-659, 1 ♂, 3 ♀, 4 tritonymphs, same collection data as holotype. QM S353, S660-667, 5 ♂, 1 ♀, 3 tritonymphs, 27.vii.1976, summit of Lamond Hill, Iron Range, NE.Q., V.E. Davies, R. Raven. QM S351, S647-651, 1 ♂, 2 ♀, 3 tritonymphs, 10-16.xi.1975, Mt Cook (south of Cooktown), NE.Q., R. Raven,

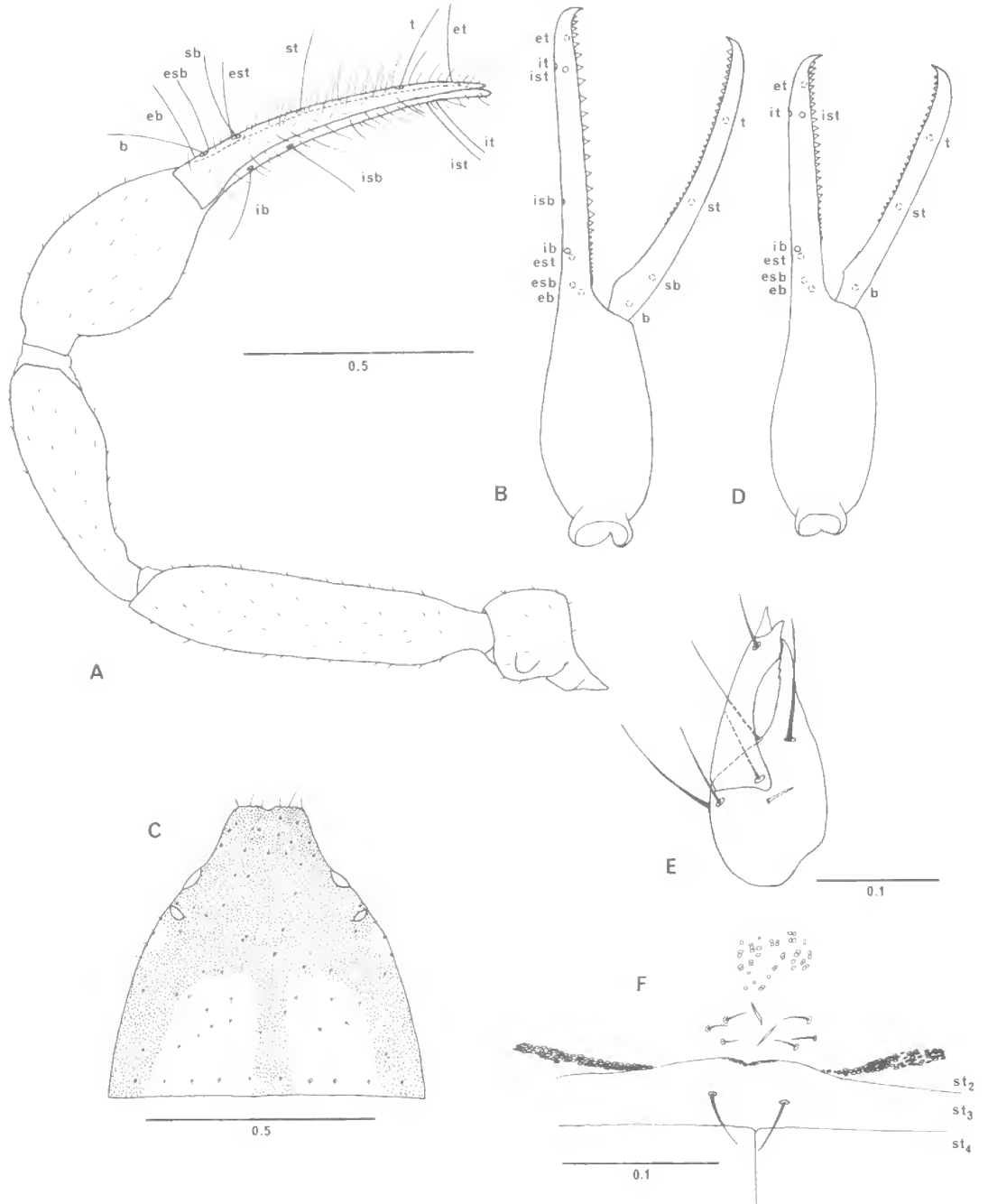


FIG. 1: *Geogarypus (G.) rhantus* sp. nov. A–C, holotype, ♂ S352; A, ventral view of right pedipalp; B, internal lateral view of left pedipalpal chela; C, carapace; D, paratype, tritonymph S656, internal lateral view of left chela; E–F, paratype, ♀ S654; E, left chelicera; F, genitalia. Scale lines in mm.

V.E. Davies. QM S350, 1 ♂, 30.x.–20.xi.1974, Home Rule (near Helenvale), NE.Q., T. Tebble, V.E. Davies, D. Joffe.

DIAGNOSIS

This relatively large geogarypine (femur length 70 to 94 mm) may be distinguished from other members of the genus by carapace mostly brown with small white areas behind eyes and larger white areas laterad of mid-line on posterior half; and chelal trichobothrium *ist* opposite or slightly proximal to *it*.

DESCRIPTION OF ADULTS

Carapace mostly brown with small white areas behind eyes and larger white areas laterad of mid-line on posterior half (Fig. 1C). Pedipalpal coxa brown, trochanter white, femur brown, except for white pedicel, tibia and chela brown. Pedal coxae and trochanter white. Femur I of first pair of legs white; of second pair white distally and proximally, brown medially, all three bands of equal length; of third and fourth pairs white. Femur II, tibia and tarsus I of all legs brown, except for extreme distal end, which is white. Tarsus II of all legs light brown. All terga with brown lateral edges. Terga I and II brown medially; IV to X brown lateromedially; VI to X brown anteromedially; XI brown; the remaining areas white.

Carapace and dorsal side of pedipalpal femur and tibia covered with star-shaped granulations; pedipalpal trochanter, chela and ventral side of femur and tibia covered with lunate ridges, pedal coxae smooth to lightly covered with lunate ridges; all legs rather prominently covered with lunate ridges. Terga reticulate, often coarsely, and sterna smooth to lightly reticulate. Pleural membrane strongly rugose and with sparse setae.

Pedipalpal trochanter 1.43 to 1.53 (♂), 1.40 to 1.48 (♀) times longer than broad. Femur stout, cylindrical, petiolate, slightly concave in the female, 3.59 to 4.73 (♂), 3.63 to 4.54 (♀) times longer than broad. Tibia 2.67 to 3.24 (♂), 2.85 to 3.14 (♀) times longer than broad. Hand ovoid, with pedicel 1.66 to 2.00 (♂), 1.80 to 1.97 (♀) times longer than broad, chela with pedicel 3.39 to 4.07 (♂), 3.67 to 4.13 (♀) times longer than broad. Fingers longer than hand with pedicel, always shorter than femur. Fixed finger with eight trichobothria, moveable finger with four trichobothria (Figs. 1A, B). *it* of fixed finger opposite or slightly distal to *ist*; *isb* closer to *ib* than to *ist*; *ib* opposite *est*; *esb* and *eb* only

approximately two areolar diameters apart. *st* of moveable finger closer to *t* than to *sb*. Fixed finger with 32 to 41 (♂), 21 to 37 (♀) large conical teeth, gradually decreasing in size proximally. Accessory tooth row with 15 to 23 (♂), 12 to 21 (♀) smaller conical teeth. Moveable finger with 18 to 34 (♂), 21 to 37 (♀) retroconical to conical teeth. Nodus ramosus not visible in either finger.

Cheliceral palm with five setae, moveable finger with one seta (Fig. 1E). Flagellum a single blade, 0.02 to 0.03 mm in length. Serrula exterior with 16 to 20 lamellae. Galea simple, slightly curved. Fixed finger with four flattened, retrorse, subapical teeth.

Carapace with four large eyes on small ocular tubercles (Fig. 1C). Anterior pair of eyes slightly larger than posterior pair. Carapace 1.03 to 1.21 (♂), 1.20 to 1.27 (♀) times longer than broad. Hind margin relatively straight, with 7 to 10 (♂), 7 to 11 (♀) setae.

Legs fairly stout. All tarsi segmented, arolium longer than claws.

All setae (except those of fourth coxa of female, which are about 0.14 mm long) small and acicular, about 0.02 mm in length. Setal pattern of male terga I to XI as follows, 7–10:6–9:9–10:8–10:8–11:9–10:8–10:7–10:6–11:4–9:6–10; of female, 7–12:7–12:8–12:10–13:9–12:9–12:7–13:9–12:7–9:4–13. Setal pattern of male sterna I to XI as follows, 0:7–9:12–20:6:9–12:10–14:10–15:10–15:9–14:7–11:0; of female, 0:5–9:0–6:3–9:5–14:13–18:13–17:16–19:11–16:11–12:0. Arranged uniseriately on posterior margin of each segment, except for those associated with genitalia (see below). Coxae of legs I, II, III and IV with 7–9 (♂), 8–13 (♀); 12–16 (♂), 12–19 (♀); 17–29 (♂), 21–33 (♀); and 23–33 (♂), 42–59 (♀) setae, respectively. All spiracles with two setae on anterior guard sclerite, which have not been included in the setae formulae.

Genitalia of male typical of family. Setae of sterna II and III clustered in centre of each segment. Anterior margin of sternum III with generally four, but sometimes three or even two setae on edge of genital operculum. Female with long, tubular, sac-like lateral cribriform plates, arising from a point adjacent to operculum. Median cribriform plates an indefinite cluster (Fig. 1F).

Anus elliptical, subventral, with four setae, anterior pair longer and further apart than posterior pair.

Dimensions (in mm)

When the measurements are expressed as a

fraction, the numerator refers to the length of the character, and the denominator refers to its width. Those in parentheses are the females and follow those of the males.

Body length 1.5–2.0 (2.0–2.3); pedipalps: trochanter .29–.36/.18–.25 (.32–.39/.22–.27), femur .70–.83/.15–.23 (.79–.94/.18–.24), tibia .49–.65/.16–.25 (.58–.67/.18–.24), chela 1.08–1.29/.28–.37 (1.28–1.43/.31–.39), finger length .63–.70 (.73–.80); chelicera .15–.19/.08–.11 (.18–.21/.08–.12), moveable finger length .11–.14 (.11–.15); carapace .58–.68/.64–.82 (.62–.74/.77–.93), cucullus length .12–.20 (.16–.21); leg I: femur I .29–.35/.09–.12 (.31–.38/.10–.13), femur II .16–.21/.08–.11 (.18–.22/.10–.12), tibia .19–.26/.06–.10 (.23–.28/.07–.08), tarsus I .12–.17/.05–.08 (.15–.20/.05–.07), tarsus II .12–.17/.04 (.15–.17/.04–.05); leg IV: femur I .13–.17/.08–.14 (.16–.19/.09–.12), femur II .36–.49/.12–.18 (.47–.57/.14–.19), tibia .26–.36/.07–.10 (.32–.42/.08–.11), tarsus I .17–.21/.05–.07 (.20–.24/.06–.07), tarsus II .15–.20/.04–.05 (.17–.22/.04–.05).

DESCRIPTION OF TRITONYMPHS

Colouration as for adults but much paler.

Pedipalpal trochanter 1.39 to 1.55 times, femur slightly petiolate, 3.21 to 4.45 times, tibia 2.52 to 2.86 times, hand with pedicel 1.73 to 2.08 times, chela with pedicel 3.62 to 4.17 times longer than broad. Fingers slightly longer than hand with pedicel but shorter than femur. Fixed finger with seven trichobothria, moveable finger with three trichobothria (Fig. 1D). *it* of fixed finger opposite *ist*; *ib* and *est* opposite; *esb* slightly distal to *eb*. *st* and *t* of moveable finger slightly closer than *st* and *b*. Fixed finger with 28 to 34 conical teeth, accessory row with 10 to 18 smaller, conical teeth, and moveable finger with 19 to 32 teeth.

Cheliceral palm with five setae, moveable finger with one seta. Flagellum a single blade, 0.02 mm long. Serrula exterior with 15 to 18 lamellae.

Carapace with four eyes (only three on S666), 1.10 to 1.33 times longer than broad. Hind margin with six to seven setae.

Tarsi all segmented, except for S667 which has its left fourth tarsus unsegmented. Arolium longer than claws.

All setae small and acicular. Setal pattern of terga I to XI as follows. 6–8:6–8:6–8:8–9:6–9:7–10:6–9:6–8:6–8:4–7:6; of sterna I to XI, 0:2:2–5:3–7:8–10:8–10:9–12:8–10:6–9:6–8:0. Coxa of legs I, II, III and IV with 5–9, 7–11, 12–19, and 17–27 setae respectively. All spiracles

with two setae on anterior guard sclerite, which have not been included in the setal formulae. Anus as for adults.

Dimensions (in mm)

Body length 1.6–1.8; pedipalps: trochanter .26–.28/.16–.20, femur .59–.69/.14–.19, tibia .39–.45/.14–.17, chela .94–1.09/.24–.27, moveable finger length .54–.61; chelicera .16–.18/.07–.09; carapace .55–.61/.66–.73, cucullus length .12–.17; leg I: femur I .24–.28/.07–.09, femur II .13–.16/.08–.09, tibia .16–.20/.06–.07, tarsus I .10–.16/.05–.06, tarsus II .13–.15/.04; leg IV: femur I .11–.15/.08–.09, femur II .31–.38/.10–.13, tibia .21–.29/.07–.08, tarsus I .14–.18/.05–.06, tarsus II .13–.17/.04–.06.

ETYMOLOGY

The specific name refers to the star-shaped granulations on the pedipalps and carapace, possibly a generic characteristic (Gr. *rhantos*, sprinkled, spotted).

DISCUSSION

The 15 adults available for study exhibit considerable variation in size, which seems to be correlated with a north-south cline. The larger specimens (pedipalpal femur length: ♂, 0.81 to 0.83; ♀, 0.93 to 0.94) were taken from the southern localities, Mt Cook and Home Rule, while the smaller individuals (including the holotype) (pedipalpal femur length: ♂, 0.70 to 0.74; ♀, 0.79 to 0.84) were taken from Lamond Hill, which is 375 km further NW. This difference is not considered sufficient to warrant the erection of a second species. Further collections are needed to establish the true nature of the possible clinal variation.

G. rhantus is easily distinguished from other members of the genus by the colour pattern of the carapace and by the distribution of the trichobothria. It seems to be most closely allied to *G. elegans* (With) which is known from the Malaysian Peninsula (With 1906).

The new species is the first record of the genus *Geogarypus* from Australia, even though Chamberlin (1930) mentioned that the genus was '... largely Asiatic and Australasian in distribution'. The three garypid genera now known from Australia may be separated by the following key (adapted from Chamberlin 1930);

- 1 Flagellum of one blade; coxae not increasing in width from I to IV (subfamily Geogarypinae).....
.....*Geogarypus*

- Flagellum of more than one blade; coxae increasing in width from I to IV (subfamily Garypinae)2
- 2 (1) Arolium shorter than claws; pedipalpal vestitural setae small and acicular; vitreous pseudoderm absent ...*Garypus*
- Arolium longer than claws; pedipalpal vestitural setae clavate; vitreous pseudoderm present *Synsphyronus*

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